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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/994,123 | 11/26/2001 | Jean Luc Dery | G&C 30566.211-US-01 | 7355 |
| 22462 | 7590 | 08/11/2004 | EXAMINER | |
| GATES & COOPER LLP HOWARD HUGHES CENTER 6701 CENTER DRIVE WEST, SUITE 1050 LOS ANGELES, CA 90045 | | | SINGH, DALIP K | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2676 | 5 |

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,123

Applicant(s)

DERY, JEAN LUC

Examiner

Dalip K Singh

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 9,10,19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,11-18 and 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) 9,10,19 and 20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/April 25,2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-8, 11-18, 21-26 drawn to rendering the next frame of the current scene; estimating a bandwidth availability for texture transfer; identifying the amount of data in a texture required for rendering a next scene; splitting said required texture into texture portions that satisfy said bandwidth availability; and transferring one of said texture portion from said data storage means to said texture storage means, classified in class 345, subclass 582.
 - II. Claims 9-10, 19 and 20 drawn to rendering the next frame of the current scene; identifying a time before the rendering for the next frame begins; comparing said time identified as above with the time required to delete a texture from said texture storage means; and if it can be completed before the next frame rendering is due to begin, deleting a texture from said texture storage means, classified in class 345, subclass 552.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as to keep texture data to moved in an efficient manner based on bandwidth availability by splitting texture data into portions to match the bandwidth available without

Art Unit: 2676

requiring invention II which is about identifying a time before a next frame begins and comparing said time identified as above with the time required to delete a texture accordingly. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Claims 9, 10, 19 and 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention II, there being no allowable generic or linking claim. Election was made with traverse in a telephone call by an agent of record, Jason S. Feldmar (Reg. No. 39,187), for this application serial no. 09/994,123 on August 2, 2004.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim(s) 1-5, 7, 8, 11-15, 17, 18, 21-23, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,880,737 to Griffin et al. in view of U.S. Patent No. 6,535,220 to Deering et al.

a. Regarding claim 1, Griffin et al. **teaches** central processing means (processor 132, Fig. 2), data storage means (main memory 134, Fig. 2; shared memory 216, Fig. 6), graphical processing means (image processing hardware

144, Fig. 2), and texture storage means (texture cache 402, Fig. 9A; texture memory 664, Fig. 16). Image data is stored in data storage means (main memory 134, Fig. 2; shared memory 216, Fig. 6). Texture data is stored in texture cache 402 and the data is so organized so that 16 texture elements can be accessed every clock cycle. Col. 2, lines 21-67 **discloses** generation of new display image every fraction of a second similar to rendering the next frame of the current scene. Griffin et al. **discloses** the memory bandwidth limitation placed on texture mapping (col. 2, lines 46-48) and identifying and splitting of required texture data into a texture block references which are then placed in a texture cache for retrieval as necessary. Griffin et al. **is silent about** estimating a bandwidth availability for texture transfer that is unlikely to interfere with the real-time rendering of the current scene. Deering et al. **discloses** a graphics system 100 comprising a rendering engine 102, texture memory 103, sample buffer 104 and filtering engine 104. It further **discloses** rendering engine being pushed beyond the limit of its processing capacity and collecting statistics on one or more previous frames and using smaller values for pixel array sizes before sending the primitive data for the current frame (...a controlling agent e.g. processor...may be configured to gather performance measurements...and to generate an initial estimate of frame rendering time...col. 2, lines 40-59; col. 5, lines 1-67; col. 6, lines 1-8). Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify the device as taught by Griffin et al. with the feature "checking the capacity or bandwidth availability of a rendering engine and using smaller pixel array values based on

such determination” as taught by Deering et al. **because** it results in faster and improved quality of the displayed video output.

b. Regarding claim 2, Griffin et al. as modified Deering et al. **implicitly discloses** measuring a processing availability with reference to a due time for a frame (...if the number of primitives for a current frame is anticipated to be large (e.g. based on statistics collected by rendering engine 102 on one or more previous frames),...col. 5, lines 40-45), updating an adaptive statistical model and obtaining an availability estimate from such a model in that if there are a large number of primitives anticipated then smaller values for the render pixel array sizes are used before sending the primitive data for the current frame which results in rendering engine more quickly complete rendering of the primitives for the current frame using these smaller render pixel array.

c. Regarding claim 3, Griffin et al. as modified by Deering et al. **discloses** splitting said texture along texture pixels (...the number of textured primitives per frame may be determined by user actions...for example, if the pilot directs his gaze towards ...many of the primitives... may be textured...use smaller values for the render pixel array sizes...col. 5, lines 5-67).

d. Regarding claim 4, Griffin et al. **discloses** texture blocks being fetched into the tiler as needed. Rendering commands are read by the tiler and they DMAed (...rendering commands are stored in main memory buffers and DMAed...col. 28, lines 1-67).

e. Regarding claim 5, Griffin et al. **discloses** deleting textures (...this flow control is accomplished by waiting until the new entry is requested before

Art Unit: 2676

overwriting the previous entry's contents. Placing new data into the texture cache is thus always deferred until the last moment until it is needed...col. 22, lines 35-65).

f. Regarding claim 7, Griffin et al. **discloses** 3-D animation as well as video processing and can as well combine video and graphics.

g. Regarding claim 8, Griffin et al. **discloses** interactive applications and supports advanced real time animation, 3-D graphics or combined graphics and video.

h. Regarding claim 11, it is similar in scope to claim 1 above and is rejected under the same rationale.

i. Regarding claim 12, it is similar in scope to claim 2 above and is rejected under the same rationale.

j. Regarding claim 13, it is similar in scope to claim 3 above and is rejected under the same rationale.

k. Regarding claim 14, it is similar in scope to claim 4 above and is rejected under the same rationale.

l. Regarding claim 15, it is similar in scope to claim 5 above and is rejected under the same rationale.

m. Regarding claim 17, it is similar in scope to claim 7 above and is rejected under the same rationale.

n. Regarding claim 18, it is similar in scope to claim 8 above and is rejected under the same rationale.

Art Unit: 2676

- o. Regarding claim 21, it is similar in scope to claim 1 above and is rejected under the same rationale.
 - p. Regarding claim 22, it is similar in scope to claim 2 above and is rejected under the same rationale.
 - q. Regarding claim 23, it is similar in scope to claim 3 above and is rejected under the same rationale.
 - r. Regarding claim 25, it is similar in scope to claim 7 above and is rejected under the same rationale.
 - s. Regarding claim 26, it is similar in scope to claim 8 above and is rejected under the same rationale.
7. Claim(s) 6, 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,880,737 to Griffin et al. in view of U.S. Patent No. 6,535,220 to Deering et al. as applied to claim 1 above and further in view of U.S. Patent No. 6,677,955 B1 to Morioka.
- a. Regarding claim 6, Griffin et al. **teaches** central processing means (processor 132, Fig. 2), data storage means (main memory 134, Fig. 2; shared memory 216, Fig. 6), graphical processing means (image processing hardware 144, Fig. 2), and texture storage means (texture cache 402, Fig. 9A; texture memory 664, Fig. 16). Image data is stored in data storage means (main memory 134, Fig. 2; shared memory 216, Fig. 6). Texture data is stored in texture cache 402 and the data is so organized so that 16 texture elements can be accessed every clock cycle. Col. 2, lines 21-67 **discloses** generation of new display image every fraction of a second similar to rendering the next frame of the current

Art Unit: 2676

scene. Griffin et al. **is silent about** updating of textures in the sense that removal of textures in order to facilitate texture storage for next scenes and comparison of time before the rendering of the next frame if deletion of a texture can be completed before such time and if so deleting a texture from texture storage means. Morioka **discloses** first performing rendering in the frame period and then in the remaining time of that frame period, rewriting the texture data in the texture buffer memory and also if there is no time left as rendering process takes all of the frame period, not updating the texture data during that frame period (col. 2, lines 5-65). Therefore, it would have been obvious to a person of ordinary skill in the art at the time invention was made to modify the device as taught by Griffin et al. with the feature “updating a texture after having identified a time before the rendering for the next frame if such updating can be done and deleting a texture from said texture storage means” as taught by Morioka **because** it keeps the rendering process performance efficient.

b. Regarding claim 16, it is similar in scope to claim 6 above and is rejected under the same rationale.

c. Regarding claim 24, it is similar in scope to claim 6 above and is rejected under the same rationale.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Dalip K. Singh** whose telephone number is **(703) 305-3895**. The examiner can normally be reached on Mon-Thu (8:00AM-6:30PM) Fridays off.

Art Unit: 2676

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Matthew Bella**, can be reached at **(703) 308-6829**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

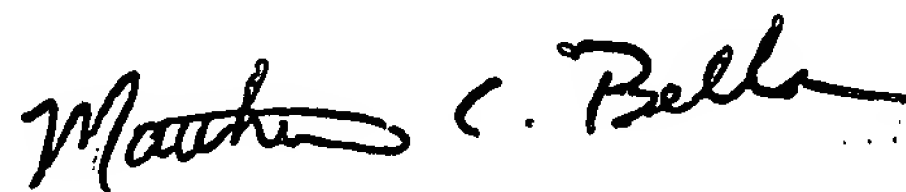
(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dks

August 6, 2004



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600